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prominent makers, importers, and sellers of microscopes, has extended the scope of the work to other items of interest to microscopists, and will include in the publication, to be issued annually, various tables and data, and a list of microscopical societies, their officers, etc., after the model of that originally published in the NATURALIST. The price of this convenient little work is 25 cents. Persons interested are requested to send subscriptions and data to the above address.

EXCHANGES. — Rare chemicals for the polariscope, starches, etc., offered for well-mounted slides; anatomical preparations preferred. Exchange lists printed for microscopists by papyrograph. Address G. E. Bailey, Lincoln, Nebraska.

Plumule scales of small cabbage butterfly (*Pieris rapæ*), mounted, for good slides. Address Edward Pennock, 805 Franklin Street, Philadelphia.

Shell sand from Bermuda, containing very fine foraminifera, spicules, etc., either mounted or unmounted. Address C. C. Merriman, Rochester, N. Y.

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#### SCIENTIFIC NEWS.

— A special meeting of the California Academy of Sciences was held August 31st, for the purpose of extending a formal welcome to a trio of distinguished scientists then visiting the State, namely, Sir J. D. Hooker, C. B., Prof. Asa Gray, and Prof. F. V. Hayden. After eloquent addresses of welcome by the president of the Academy, Professor Davidson, and by Messrs. Henry Edwards and R. E. C. Stearns, Sir J. D. Hooker returned thanks for the cordial welcome given, and said he came here to learn, and not to teach, and his visit was immediately due to the experience of his old friend, Professor Gray — a friend of forty years' standing — and to the invitation of his old correspondent, Professor Hayden, whose guests they had been during the time they spent in Colorado and Utah. His acquaintance with the vegetation of America had heretofore been an extremely slight one. In association with his father's pursuits, who was for many years occupied in publishing investigations of the plants of the British possessions of North America, he was led to the investigation of the Arctic flora. In the investigation he was struck with the uniformity of vegetation extending round the whole globe in the North. There was very little difference between the vegetation of America and the Old World within the Arctic circle; but upon close examination he found that even the American flora was divisible into two sections by very slight but still definite characters; that in crossing over from Greenland to the American islands, so called, there was a distinct change in the vegetation, though very slight. The opportunity he had now had of crossing the continent of North America from east to west, had shown him that that distinction is carried out to a very much greater

extent than he had any notion of. The publications of Gray and others, had made him aware that there is a broad line of distinction between the vegetation east of the Mississippi and west of it, but he did not expect to find the variety so great as it is, and he was strongly inclined to say, though he said it under correction, that there is probably a greater difference between the east and west coasts of the American continent than there is between any two similarly related regions in any part of the globe; that you may travel from England to Spain, from Siam to China, without finding so diverse vegetations as by crossing the Mississippi and comparing the banks one hundred miles east on one side with one hundred miles west on the other. As far as the country east of the Mississippi is concerned, he was, by practical observation, almost entirely ignorant. He knew nothing of it except from the copious notes of Professor Gray conned while traveling. Since then he had the opportunity of spending some weeks in the Rocky Mountains and then of coming here, and he found a more curious difference than he had anticipated in the vegetation between the Rocky Mountains and the Sierra Nevada. He had every reason to suppose that this great difference of vegetation exists south of the parallel along which he had traveled. Time had not allowed them to digest the notes collected on the way, and more than he had announced he was not prepared to say. The president had asked him to say a few words with respect to the Academy. In England they knew well enough what it is to wait for results; but he might be believed when he said that the destinies of science on this coast are great, and a time will come that will show great results, and that will come with immense force, and for these two reasons: There is here a most intelligent and most active and progressive population, and, in the second place, there is here one of the most remarkable assemblages of natural objects and physical phenomena that any part of the world possesses. In speaking thus, he included the whole coast north and south of California. There is no section of the earth in which so many singular phenomena can be observed as in this. Without seeking to give advice, he might point out what has been the element of success in the greatest Academy of England, the Royal Society. It began with very few men, and for the best part of two centuries it was supported by what he might, without disrespect to his ancestors in science, call elderly people. It was by the elderly men who loved science, holding together congenially year after year, and almost century after century, that the young men of the society were drawn to it, and it is but lately that young men in any numbers have come into the society. For success there are three principal elements, — the holding together of the elderly members, of those who have had experience of this life in other matters than science, and who bring that experience together, with methodized common sense, of which science consists, to bear upon the objects of the society itself. In the second place, there is the important work of the secretary, together with

that of the publication committee, which should carefully pass judgment upon the communications to be given to the world. The supervision of the papers of a society by several members is perhaps the most important scientific work that any society can perform. Thirdly, there is the necessity of looking well after the funds, and managing them with economy and prudence.

Dr. Gray said it was almost forty years since Sir Joseph and himself spent some few hours together in the neighborhood of London, at the table of a then very venerable man, long since gone to his rest, Archibald Menzies, who was surgeon and naturalist of Vancouver's voyage. The interest in the venerable gentleman arose from the fact that he had been round the globe, and particularly had visited this part of it, and he was the first English naturalist, and almost the first naturalist, who set foot on this part of the continent. Partly through Professor Davidson's investigations he had been enabled to trace the footsteps of Menzies, whose name is merged in so many of our plants, the Madrona for instance. He had found that he had been in San Francisco, at the Presidio, and that he found his way as far as Santa Clara or San Jose, and it is very well known that he visited the point which was then the oldest settlement; that he landed and botanized at Monterey. It was with peculiar pleasure that they had followed in his footsteps at Monterey, and had been able to gather some plants and to see the withered remains of others that he first made known to the civilized world. Monterey is also the spot that some earlier naturalists visited, where the Spanish naturalists Mocino and Lesse collected plants, and also the Russian naturalists, Chamisso and Eschscholtz, whose names are familiar in all our gardens — household names in plants. The season of their visit to the coast had proved unpropitious on account of the great drouth, and what is still worse, from the ravages of the great flocks of sheep which have devastated the herbaceous vegetation of the Sierra. Fortunately the forests remain, the most important vegetation in respect to climate, geographical distribution, and utility. They had been very busy, and their work had not been in vain. They would be enabled to make some interesting comparisons, after visiting the Rocky Mountain region, and to settle, from observation in the field, some of the questions they had sought to settle in the laboratory and the conservatory. In conclusion, he referred to his visit five years ago, and the great pleasure it had given him to have as a companion his old friend Joseph Hooker.

Professor Hayden, in responding to the welcome, indicated the features of the geological survey in progress under his direction, and said he had long desired to make some comparison between the Sierra Nevada Mountains and the Rocky Mountains. It had always been his belief, although the belief had been corrected by his studies of the eastern slope, that there is a general geographical as well as geological unity in all the different ranges of mountains that compose our country. Some geologists have endeavored to give to the Sierra the name of the Cordilleras,

as a generic term, extending it to the Andes and to the eastern range, the Rocky Mountains. Other geologists have sought to make the Rocky Mountains the generic name, including in that range all the rest, and making the Sierra Nevada a branch. He was now inclined to think there is difference enough in the two ranges to regard them as separate, and perhaps almost independent ranges. One object of his visit was to examine the Yosemite Valley, and study the phenomena of its formation, and this he had been enabled to do. At some time he hoped to be in a position to study the geology of the coast carefully.

Professor Davidson added some remarks on the climatology of the coast with reference to ocean currents, and thereafter the Academy adjourned.

— The Princeton College student-expedition to the Rocky Mountains appeared to meet with good success. It started June 21st, and returned early in August, having accomplished a good deal in exploring the botany, zoölogy, palæontology, mineralogy, and topography of Colorado and the region about Fort Bridger in Wyoming. Nearly a thousand species of plants were collected. Of zoölogical specimens there were secured the heads of mountain sheep, elk, deer, antelope, bear, beaver, mountain lion, lynx, wild-cat, badger, etc., with complete skeletons of many animals of lesser size. A goodly collection of fossils was obtained in Colorado and in the Uintah Mountains.

— We have received Monographs of North American Rodentia, by Elliott Coues and Joel Araph Allen. Published as one of the quarto series of the United States Geological Survey of the Territories, F. V. Hayden in charge. Washington, 1877. It contains eleven monographs, five by Dr. Coues and six by Mr. Allen, with appendix; A Synoptical List of the Fossil Rodentia of North America, by J. A. Allen, and Appendix B; Material for a Bibliography of North American Mammals, by Theodore Gill and Elliott Coues. The volume is carefully indexed, comprises 1091 pages, and contains fine plates illustrative of the skulls of the Muridæ. It may be truly said to be a monumental work upon a single order of mammals.

— One of the most valuable and useful works on zoölogy ever published and which is still passing through the press, is Bronn's *Klassen und Ordnungen des Thier-reichs*. Of the fifth volume, *Arthropoda*, Lieferung 24 has been the last published. The volume so far as it goes is accompanied by thirty-nine plates, and the text has been prepared by Professor Gerstaecker, the well known entomologist.

— A second edition of the Index Geological Map of Newfoundland, on the scale of twenty-five miles to an inch, has been published by Mr. Murray, whose report for 1876 has been issued.

— The Norwegian Expedition to the North Sea has met with fair success, especially in mapping the sea bottom off the coast of Norway, and ascertaining the limits of the extended barrier which keeps back the cold water coming from the depths of the Polar Sea.

—Sets of recent collections made by Dr. E. Palmer in Northern Arizona and Southeastern California in 1876, and Southern Utah and Nevada in 1877, may be obtained by application to Dr. C. C. Parry, Davenport, Iowa, or Professor Sereno Watson, Cambridge, Massachusetts. The sets number from three hundred to five hundred species, to be sold at \$8.00 per hundred species.

— Professor Frederick Wahlgren, of the University of Lund, died in July, aged fifty-seven. Professor T. A. Conrad, the conchologist and palæontologist, died August 9th, aged seventy-four.

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### PROCEEDINGS OF SOCIETIES.

BOSTON SOCIETY OF NATURAL HISTORY. — October 3. Mr. M. E. Wadsworth remarked on the so called tremolite of Newbury, Mass. Dr. T. M. Brewer read some notes on the stilt sandpiper, and Mr. S. H. Scudder exhibited a large collection of fossil insects from Colorado, made during the past summer, under the auspices of Hayden's U. S. Geological Survey of the Territories.

NEW YORK ACADEMY OF SCIENCES. — October 1. Mr. G. N. Lawrence presented descriptions of new West Indian birds, and Professor H. L. Fairchild made a communication on the structure of *Lepidodendron* and *Sigillaria*.

APPALACHIAN MOUNTAIN CLUB. — October 10. Mr. S. H. Scudder described an ascent of the Sierra Blanca in Colorado.

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### SCIENTIFIC SERIALS.<sup>1</sup>

AMERICAN JOURNAL OF SCIENCE AND ARTS. — On the Relations of the Geology of Vermont to that of Berkshire, by J. D. Dana. A Preliminary Catalogue of the Reptiles, Fishes, and Leptocardians of the Bermudas, with Descriptions of Four Species of Fishes believed to be New, by G. B. Goode.

CANADIAN ENTOMOLOGIST. — July. Remarks upon the Cynipidæ, by H. F. Bassett. August. — On the Preparatory Stages of *Satyrus nephele*, by W. H. Edwards.

ANNALS AND MAGAZINE OF NATURAL HISTORY. — The Post-Tertiary Fossils procured in the late Arctic Expedition; with Notes on some of the Recent or Living Mollusca from the same Expedition, by J. G. Jeffreys.

THE GEOLOGICAL MAGAZINE. — September. Across Europe and Asia. Part III. The Middle Urals, by John Milne. Geology of the Isle of Man, by H. H. Howarth.

<sup>1</sup> The articles enumerated under this head will be for the most part selected.